

Weekly Report

Haidong CHEN

June 30, 2013

1 Project

Inspired by the Nokia's map project based on browser(<http://heremaps.cn/>), I did a detailed research on the climate data visualization based on WebGL. And I implemented a demo system to testify the major techniques we will use including Javascip, WebGL, and so on. The hybrid visualization technical pattern does not move forward due to the delay of Haonan's pattern search.

2 Research

The cleaning of U.S. crime rate dataset is done. I only choose some metropolitan statistical areas for projection. Because, the complete dataset consists of the crime rate of almost 9,000 cities, which is a big computation challenge with my current projection procedure. In the following week, I will do some experiments on this dataset.

Paper [1] borrows the idea from machine learning for image compression is pretty interesting. After a quick go-through of this paper, I found that it can go far to compress 3D volumetric dataset with the same technical routine. Roughly, we first can follow some active learning method to chose representative voxels flowed by the byte presented dataset. In such a way, almost 1/4 compression rate can be achieved. The feasibility of this routine needs more dig-out work in this area. In next week, I will carefully review this paper again to gain the mathematical details.

3 Work to do in next week

- Conduct some experiments with the U.S Crime Rate dataset.
- Reading papers on correlation modelling for ensemble dataset.
- Set up the basic framework for the browser-based climate visualization framework for other team members.
- Have discussion with Biao on parallel visualization system of the project.

References

- [1] Xiaofei He, Ming Ji, and Hujun Bao. A unified active and semi-supervised learning framework for image compression. In *Computer Vision and Pattern Recognition, 2009. CVPR 2009. IEEE Conference on*, pages 65–72. IEEE, 2009.